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(54) **DROPLET EXTRACTION FROM A LIQUID COLUMN FOR ON-CHIP MICROFLUIDICS**

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(57) **ABSTRACT**

A refill droplet facilitates the extraction of a droplet laterally from a channel in a microfluidic apparatus. Such extraction allows a discrete band of separated particles or solute molecules to be excised from a fluid stream and processed and analyzed separately. An extraction point is located along the length of the channel and includes an EWOD surface or similar microfluidic technology to extract a droplet. An opening in the channel opposite the extraction means is equipped with microfluidic technology to transport a refill droplet to the opening. The refill droplet is moved into the channel or column to occupy the area previously occupied by the extracted droplet. This prevents distortion or mixing of the bands of particles or molecules within the channel and prevents the draining of any portion of the fluidic system.